

AMENDMENTS TO THE CLAIMS

1. **(Currently Amended):** A method for preparing a hydrogen generation reactor chamber to reduce coking, the method comprising:

applying a cold spray of (a) an alkaline oxide mixed with metal or (b) oxides doped with alkali metal or alkaline earth ~~metals~~ compounds, mixed with metal, to at least one surface within the chamber.

2. **(Currently Amended):** The method of claim 1 wherein the metal is selected ~~from~~ from the group consisting of noble metals and ~~alkaline~~ transition metals.

3. **(Original):** The method of claim 1 wherein the percentage of metal to alkaline oxide in the cold spray is about 50% to about 90%, respectively.

4. **(Original):** The method of claim 1 wherein said hydrogen generation reactor chamber is comprised of at least one of aluminum, stainless steel, titanium and high temperature refractory alloys suitable for hydrogen generation.

5. **(Original):** The method of claim 1 wherein said hydrogen generation reactor chamber is further comprised of at least one port having a tube.

6. **(Currently Amended):** The method of claim 5 further comprising a step of applying a cold spray of an alkaline oxide mixed with metal or oxides doped with alkali metal, or alkaline earth ~~metals~~ compounds, mixed with metal to a surface of said tube, said application to said tube occurring either during said application of said cold spray to principal surfaces within the chamber or during a separate applying step.

7. **(Original):** The method of claim 6 wherein said applying step is directed to at least an inner surface of said tube.

8. **(Original):** The method of claim 6 wherein said applying step is directed to at least an outer surface of said tube.

9. **(Original):** The method of claim 6 wherein said tube protrudes into said hydrogen generation reactor chamber.

10. **(Canceled).**

11. **(Original):** The method of claim 1 wherein said hydrogen generation reactor chamber has a cover, said cover having applied thereto a cold spray of an alkaline oxide mixed with small quantity of metal.

12. **(Original):** The method of claim 11 wherein said cover also has a hydrogen separation membrane incorporated therein.

13. **(Canceled).**

14. **(Canceled).**

15. **(Original):** The method of claim 1, wherein said cold spray is applied to leave portions of said hydrogen generation reactor chamber uncoated for joining operations.

16. **(Previously Presented):** The method of claim 15, wherein said joining operations comprise at least one of welding, brazing or diffusion bonding.

17. **(Original):** The method of claim 1, further comprising applying said cold spray to any protrusion into said hydrogen generation reactor chamber.

18. **(Original):** The method of claim 17, wherein said protrusions is at least one of tubings, thermowells and wells for sensor probes.

19. **(Canceled).**

20. **(Canceled).**

21. **(Original):** The method of claim 1 wherein said hydrogen generation reactor chamber is tubular.

22. (Original): The method of claim 21 wherein said tubular hydrogen generation reactor chamber has covers or end-caps that contain one or more tubes.

23. (Currently Amended): A method of fabricating a low temperature hydrogen generation reactor chamber for reduced carbon accumulation, the method comprising:

applying a cold spray of ~~a mixture of~~ (a) alkali metal and an alkaline oxide mixed with metal or (b) oxides ~~doped with alkali~~ or alkaline earth compounds, mixed with metal to at least one surface within the chamber.

24. (Currently Amended): A method of preparing a hydrogen generation reactor chamber to reduce carbon formation on an inner surface of the hydrogen generation reactor chamber, the method comprising:

applying a cold spray of (a) an alkaline oxide mixed with metal or (b) oxides doped with alkali metal or alkaline earth ~~metal~~ compounds, and mixed with metal, to the inner surface of the hydrogen generation reactor chamber.

25. (Currently Amended): A method of preparing a low temperature hydrogen generation reactor chamber to reduce carbon formation on an inner surface of the hydrogen generation reactor chamber, the method comprising:

spraying a gas-fill mixture, comprising ~~a metal and~~ (a) an alkaline oxide mixed with metal or (b) oxides doped with alkali metal or alkaline earth compounds, mixed with metal, to the inner surface of the hydrogen generation reactor chamber.